WHAT IS CLAIMED IS:

1. A synchronization timing correcting circuit for correcting a synchronization timing of a base station which has been once captured, comprising: an input signal processing timing control section which has window moving means for, on the basis of a window position changing signal for instructing a change of a frequency central value of a window defining a range for monitoring a synchronization timing which has been once captured, changing the frequency central value of the window, and which produces signals within the window about the frequency central value set by the window moving means from a signal received from a base station;

a plurality of correlating devices which perform correlation values between the signals produced by the input signal processing timing control section and predetermined spreading codes, respectively; and

a synchronization timing detecting section which has deviation amount judging means for detecting a deviation amount and a deviation direction of a frequency central value of a window set currently from a synchronization timing which is a timing at which the correlation value becomes maximum by comparing the respective correlation values with one another to determine a movement amount of the central frequency of the window to be moved on the basis of the deviation amount and the deviation direction, and outputting the movement amount determined to the window moving means as the window position changing signal.

2. A synchronization timing correcting circuit according to claim 1, wherein the deviation amount judging means takes an average value of differences between a frequency central value set currently and the synchronization timing detected for a fixed period, and when the average value exceeds a predetermined reference value, change of the frequency central value of the window is made.

3. A synchronization timing correcting circuit according to claim 1, wherein the deviation amount judging means calculates a judgement value Y(n) using

$$Y(n) = Z \times Y(n-1) + (1-Z) \times T,$$

where Y(n) is a judgement value which is a criterion about whether or not the change of the frequency central value of the window should be made, Y(n-1) is the previous judgement value, T is a deviation amount detected, and Z is a calculation coefficient larger than 0 and smaller than 1, and when the judgement value Y(n) exceeds a predetermined reference value, change of the frequency central value of the window is made.

4. A synchronization timing correcting circuit according to claim 1, wherein the frequency central value is shifted by only one clock with to one time change.

5. A synchronization timing correcting circuit according to claim 2, wherein the frequency central value is shifted by only one clock with to one time change.

6. A synchronization timing correcting circuit according to claim 3, wherein the frequency central value is shifted by only one clock with to one time change.

7. A synchronization timing correcting circuit according to claim 1, wherein the frequency central value is shifted by the deviation amount detected with one time change.

8. A synchronization timing correcting circuit according to claim 2, wherein the frequency central value is shifted by the deviation amount detected with one time change.

9. A synchronization timing correcting circuit according to claim 3, wherein the frequency central value is shifted by the deviation amount detected with one time change.

10. A synchronization timing correcting method for correcting a synchronization timing of a base station which has been captured once, comprising the steps of:

producing signals within a window defining a range where the synchronization timing which has been captured once is monitored from a signal received from the base station to output the produced signals;

performing calculations of correlation values between the respective produced signals and predetermined spreading codes, respectively;

comparing the respective correlation values with one another to detect a deviation amount and a deviation direction of the

frequency central value of the window set currently from a synchronization timing which is a timing at which the correlation value becomes the maximum; and

determining a deviation amount by which a central frequency of the window is moved on the basis of the deviation amount and the deviation direction to change the frequency central value of the window by the deviation amount determined.

11. A synchronization timing correcting method according to claim 10, wherein the step of detecting the deviation amount and the deviation direction comprises

a step of taking an average value of differences between the frequency central value set currently and the synchronization timing detected for a fixed period; and

a step of performing a change of the frequency central value of the window when the average value exceeds a predetermined reference value.

12. A synchronization timing correcting method according to claim 10, wherein the step of detecting the deviation amount and the deviation direction comprises

a step of calculating a judgement value Y(n) using

$$Y(n) = Z \times Y(n-1) + (1-Z) \times T,$$

where Y(n) is a judgement value which is a criterion about whether or not the change of the frequency central value of the window should be made, Y(n-1) is the previous judgement value, T is a deviation amount detected, and Z is a calculation coefficient larger than 0 and smaller than 1, and

a step of changing of the frequency central value of the window, when the judgement value Y(n) exceeds a predetermined reference value.

13. A synchronization timing correcting method according to claim 10, wherein the step of changing the frequency central value of the window moves the frequency central value of the window by only one clock with one time change.

14. A synchronization timing correcting method according to claim 11, wherein the step of changing the frequency central value of the window moves the frequency central value of the window by only one clock with one time change.

15. A synchronization timing correcting method according to claim 12, wherein the step of changing the frequency central value of the window moves the frequency central value of the window by only one clock with one time change.

16. A synchronization timing correcting method according to claim 10, wherein the step of changing the frequency central value of the window moves the frequency central value of the window by the deviation amount detected with one time change.

17. A synchronization timing correcting method according to claim 11, wherein the step of changing the frequency central value of the window moves the frequency central value of the window by the deviation amount detected with one time change.

18. A synchronization timing correcting method according to claim 12, wherein the step of changing the frequency central value of the window moves the frequency central value of the window by the deviation amount detected with one time change.